Implementation of 21st Century Skills in Higher Education of Pakistan

Vol. IV, **No.** III (Summer 2019) | **Page:** 223 – 233 | **DOI:** 10.31703/grr.2019(IV-III).25

p- ISSN: 2616-955X | **e-ISSN:** 2663-7030 | **ISSN-L:** 2616-955X

Hayat Khan* | N.B. Jumani† | Nawab Gul‡

Abstract *The emergence of the global economy has changed the demands of citizenship and employment in the new millennium. The world is shifting from an industrial economy to knowledge based economy. Keeping in view these challenges, 21st century society and work sphere require individuals equipped with 21st century skills. Therefore the present study was designed to examine the implementation of 21st century skills in universities of Pakistan. The aim of the study was to examine the existing programs and practices at the universities and their relation with 21st century skills. Learning and innovation skills, also called 4Cs skills, were taken as 21st century skills in the present study. These skills consist of (i) critical thinking and problem solving, (ii) communication, (iii) collaboration, and (iv) creativity. Findings of the study revealed that these skills were not fully developed in majority of the students in universities.*

Key Words: Global Economy, Knowledge based Economy, 21st Century Skills and Implementation

Introduction

Higher education has a close link with the economic development and prosperity of the nations in today's world of globalization and knowledge driven economy. Institutions of higher education do not have only the responsibility of generating and creating new knowledge but also to equip the new generation with the advanced competency and skills required for the survival in the new millennium. It is higher education that uplifts and enhances the social, scientific, economic and technological improvement of a country.

Barnet (1990) argued that today's higher education is considered as capital investment and indispensable for social and economic development of any country. Similarly Mughal and Manzoor (1999) stated that the primary duty of institution for higher education is to equip the learners with conceptual knowledge and expertise required for the responsible key positions in the government as well as in other professions. According to Moore and Farris (1991), the purpose and function of higher education institutions is not just to impart knowledge in certain branches rather the purpose is more deeper and multidimensional such as personal, social, cultural and economic development. The role of tertiary education in society was further elaborated by Best (1994). According to him, education in general and higher education in particular cannot be separated from its social values. Different values including religious, moral and cultural values are transmitted to the new generations through the structure of the educational system of a country. Haider (2008) suggested that institutions of higher education must be responsive to the demands of society and challenges in the present global world. Furthermore, these institutions should fulfil the growing demands of the rising students of higher education.

The existing economic system is driven by information and communication technologies (ICT) which is a drastic change from the economy of the 20th century. Twenty first century economy of leading countries is based on innovation, manufacturing and production of products and services, instead of the manufacturing of only material goods (Friedman, 2007). Thus higher education is playing a multidimensional role in achieving the targets of the new millennium.

*PhD Scholar, Department of Education, International Islamic University, Islamabad, Pakistan.
Email: hkbabar111@gmail.com
† Professor, Department of Education, International Islamic University, Islamabad, Pakistan.
‡ Senior English Teacher, Government Higher Secondary School, Badar Banda Mardan, KP, Pakistan.

In this regard, Velez (2012) argued that the world continues to shift from an industrial economy to knowledge based economy and cultivating 21st century skills which is indispensable for the economic success of this global world. Higher education is facing severe challenges e.g., social, moral, political, and economical challenges, and its future depends on people's response to these challenges (Rao, 2003). According to Zhao (2009), knowledge and skills that were considered vital in the 20th Century is no more applicable in the 21st Century. Instead "conceptual and critical thinking" are the essential skills for the 21stCentury. Wagner (2008) advised that those (educators and institutions) who do not train learners for the demands of 21st Century would be held accountable for placing the nation at threat or risk.

The term "21st century skills" refers to some core competencies that institutions require to teach in order to prepare individuals to become citizens of global world in 21st century. According to Casner and Barrington (2006) the term 21st century skills are usually refers to an organized set of skills which are not only significant but also vital for sustainable living and learning in the 21st century. Keeping in view the changing priorities in the global world, OECD (2010) acknowledges that the concept of labour market in today's world has changed to global market which means that highly qualified people in rich countries compete for jobs with individuals having the same qualifications in lower wage countries, while twenty years ago, employments used to be localized and only individual in the home country were competitors for getting those jobs.

So keeping in view the present scenario of higher education system in Pakistan and the rapidly changing priorities in the global world, it is the need of the hour to prepare our new generation for life after college and university education. For this purpose, we will have to embed 21st century skills and competencies in the existing traditional discipline areas; because we do not need an education system that helps learners merely remember facts and figures, rather we need them to be critical consumers of knowledge and information. Thus it is concluded that if we do not make efforts for embedding new skills and competencies into the education system of technology driven world, we will be held responsible for placing our nations at risk.

Review of the Literature

Rationale for 21st Century Skills

Globalization and technological advancement in the new millennium of the 21st century have created new demands and challenges for people, organizations, societies and countries to contribute, compete, and innovate in the global economy. Wager (2008) argued that today's world has been dramatically changed since last two twenty years, where the concept of economy in the world that was linked with the industrial revolution is now driven by knowledge, information, and innovation. Hilman (2012) acknowledged that technological progress in last twenty years has reshaped this world into a global village with a huge interconnectedness. The existing issues in the world are no more local or international; they have become global or borderless. In order to understand the issues of this globalized world, individuals must need to develop new skills so that they may collaborate and survive in this global era. As a result of this interconnectedness, the globalized world has become more mutually dependent.

The concept of labour market in today's world has changed to global market which means that highly qualified people in rich countries compete for jobs with individuals having the same qualifications in lower wage countries, while twenty years ago, employments used to be localized and only individual in the home country were competitors for getting those jobs (OECD, 2010). Kay and Greenhill (2011) pointed out that over 80% of the jobs in the world have been shifted from the manufacturing industry to the service industry, which demands for employees equipped with essential skills of 21st century.

Keeping in view the above discussion, it may be concluded it is need of the day to equip our graduates with specialized skills so that they may compete and survive in present global world and this can be done by equipping students in general and graduates of higher education in particular with essential skills and knowledge of 21st century to fulfil the demands of knowledge based economy in the contemporary global society.

Framework for 21st Century Learning

The organization Partnership for 21st Century Skills (P21) was emerged as one of the prominent advocacy organizations for 21st century skills in 2002. This organization emphasized on infusing and integration of 21st

century skills into the field of education. The P21organization provides opportunities to educational leaders, business community and policymakers for defining an integrated vision of 21st century education so that every individual may contribute well to the society as a global citizen and as a worker in the 21st century. It encourages institutions, administrators as well as educators for the implementation of 21st century skills in educational institutions (P21, 2008). It also showed concerns for not preparing of 21st century graduates and resultantly presented an integrated and collective vision for learning known as "The Framework for 21st Century Learning" also recognized as P21 framework. This Framework portrays the essential skills and abilities that individual must learn to be successful in work as well as life. Furthermore, P21 framework is a combination of skills, knowledge, expertise, and literacy.

P21 (2011) elaborated that the implementation of every new skill needs the knowledge of core subject along with understanding among all the learners. Those learners, who can solve and analyse the problems, think deeply and communicate efficiently; they must have a strong base of subject knowledge. P21 (2009) summarized the essential skills and abilities for 21st century students in the following figure. The figure consists of 21st century student outcomes (shown by the rainbow arches), support systems (shown by light blue pools at the bottom) and 21st century themes and academic content (at the center of the figure shown by the green arch).

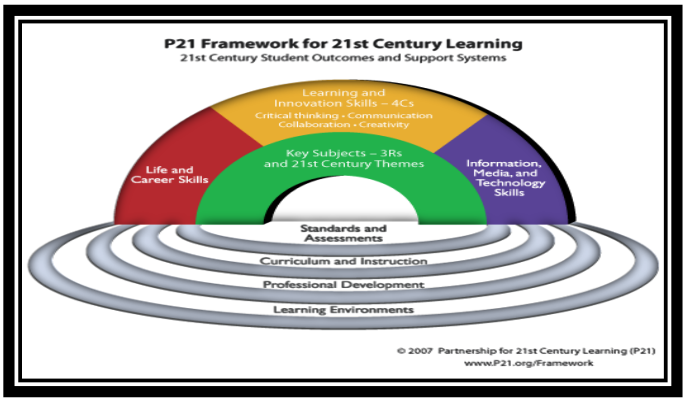

Figure 1: Model for 21st century skills

Three sets of skills in the above figure were considered as "21stcentury skills" and these skills are;

Learning and Innovation Skills (also called 4C's)

These skills are categorized in the following competencies; (i) Creativity and Innovation; (ii) Critical thinking and problem solving; (iii) Communication; (iv) Collaboration**.**

Information, Media and Technology Skills

These competencies are divided in the following; (a) Information Literacy; (b) Media Literacy; (c) ICT (Information, Communications and Technology) Literacy.

Life and Career Skills

Life and career skills are;(a) Flexibility and Adaptability; (b) Initiative and Self-Direction; (c) Social and Cross-Cultural Skills; (d) Productivity and Accountability; (e) Leadership and Responsibility.

The present study is delimited to learning and innovation skills, therefore these skills are briefly discussed in the following.

Learning and Innovation Skills (4Cs)

Kay and Greenhill (2011) argued that 4Cs skills are taken as the heart and soul of the framework of P21. These skills are more recognizable in those individuals who are in post-secondary education and career settings. The

domain of Learning and Innovations Skills consist of four elements. Each of the four skills (elements) begins with the letter C and hence these elements also refer to as "4Cs" skills. These 4Cs skills are (i) Critical thinking and problem solving, (ii) Communication, (iii) Collaboration, and (iv) Creativity and innovation (P21, 2011). In this section we briefly discuss these four specific skills one by one.

Critical Thinking and Problem Solving

Critical thinking is inborn ability of individuals and cannot be developed naturally. It is a learned ability and must be transmitted to students during teaching learning process. Most learners do not learn this ability. The ability of critical thinking cannot be transmitted to the learners by their peers as well as by most of their parents. Well trained and knowledgeable teachers are indispensable for the transmission of critical thinking skill to the students (Schafersman, 1991). Different people defined critical thinking in different ways. For example, Trilling and Fadel (2009) described critical thinking as the capability of an individual to analyze, interpret, and evaluate information. Similarly the National Council for Excellence in Critical Thinking (California) defined that it is an intellectual process of conceptualizing, evaluating, analyzing, and synthesizing the gathered information from observation, reasoning, experience, and reflection (NCECT, 2014). Dobozy, Bryer and Smith (2012) acknowledged that the process of critical thinking is to evaluate the authenticity of ideas and opinions in the light of available evidences. If the available evidences lack to support the opinions then critical thinking would terminate it as generally incorrect. Critical thinking is not limited to our understanding based on common sense and individual ideas because it is the subjective ways of knowing and studying something. Critical thinking is to classify and analyze objective data that further support the given phenomenon (Halpern, 2003)

Pacific Policy Research Centre (2010) reported that these skills enable the graduates to;(i) reason effectively;(ii) ask conceptual questions and solve problems; (iii) to analyse, interpret and assess alternative points of view, and (iv) to reflect on decisions and processes. P21 (2010) defines critical thinking as the aptitude of individual to think deeply and investigate. Hatcher and Spencer (2005) stated that critical thinking is the capability of an individual to analyze and assess information. It enables the individual to point out and formulate essential questions, collect and assess significant and relevant information, utilizing abstract ideas and communicate efficiently with others. On the other hand, passive thinkers suffer from a limited world view. The skill of critical thinking is important and crucial because it can be used in the workplace; it also helps the individual to deal with spiritual and mental questions. Furthermore, it can be used to evaluate people, institutions, and policies to avoid social problems. In this regard Berliner (2010) criticized the existing system of standardized tests and argued that standardized tests of the current era are incompatible with the needs of 21st century education and critical thinking.

Creativity

In today's environment, where students interact with the existing media and technologies in everyday experiences, creativity and innovation skills have gained an important role in contemporary society for creation of new knowledge. Reid and Petocz (2004) argued that the concept of creativity varies from disciplines to disincline: in the field education its meaning is "innovation"; in the field of business it is taken as "entrepreneurship"; in the discipline of mathematics it is equated with "problem-solving", and in the discipline of music it is considered as "composition". P21 (2006) defined creativity as the ability of individuals create novel and valuable ideas or thoughts, and to analyze, polish, and assess their own or existing ideas to increase creative efforts. Similarly Perkins (1988) defined the creative person as the individual who fairly and routinely produces creative results. Creative person was further elaborated by Robinson (2001), who stated that the skill of creativity enables the individuals to think at their own, identify and solve crucial problems. He further added that the Jobs of the 21st Century will need such workers who have the ability of flexibility, adaptability, innovation and creativity.

According to Gardner (2006), "Creative person is one who asks questions of status quo and does not afraid of failure when challenges the accepted ideas. This is because; many of the famous creators of the world did not like the school activities, they did not want to act upon someone else' tune. Ombati and Stephen (2015) argued that creativity and innovation are becoming significant for the development of prevailing 21st century society.

They further highlighted that education is to be considered as an instrument for enhancing creative and innovative skills of students. It stresses the need to encourage the development of creative and innovative potential of students. There are three different types of creativity and they are outlined by MacKinnon (2005). Out of these three, the first kind of creativity is artistic creativity and it includes the creative person's inner perceptions, needs as well as inspirations. The next (second one) is called scientific creativity or technological creativity and it deals with the novel solution of problems of the environment but demonstrates little personality of the creator. The third type of creativity is known as hybrid creativity and it is found in the fields of architecture that demonstrates novel solution of the problem as well as the personality of the creator

Communication

It enables the individuals to articulate and convey ideas by using oral, written, as well as non-verbal languages. In this regard, Greenhill (2010) pointed out that dealing with the multicultural population in the diverse and globalized world, communication is playing a very crucial role for working together across the world. The communication skill must be taught on priority base in the system of education before entering to the work place. Effective communication of important ideas between the colleagues and co-workers can be integrated into core courses of the institutions. Multiculturalism and diversity of the world demand for the usefulness and effectiveness of the communicative and collaborative skills.

P21 (2009) described communication skill in term of five multiple essential skills. They are; (i) the ability of individuals to articulate thoughts effectively; (ii) the ability of individuals to articulate ideas orally as well as nonverbally; (iii) the capability of individuals to listen and then build sense of what is being said; (iv) the ability to communicate effectively and to use a wide scope of media and interrelated technologies; (v) the ability to communicate effectively and efficiently in diverse settings (including multi-lingual). Gay (2002) revealed that the importance of being able to communicate within a multicultural context and to communicate different ideas with in the diverse populations in a variety of ways and settings is indispensable for the survival in this world. Furthermore, allowing learners to integrate their knowledge and skills of multiculturalism into group projects in an educational setting is way to contribute to the overall accomplishment of communication and collaboration skills essential for post-secondary education and life careers.

Collaboration

In the present era, technology has drastically changed the way of learning. Presently, the collaboration no longer refers to a skill to be developed, but an essential prerequisite of the new millennium of 21st century. Trilling and Fadel (2009) argued that collaboration is a key element and indispensable for career or professional success in the 21st century and it consists of the articulation of thoughts, effective listening as well as teamwork.

P21 (2006) defined collaboration as the aptitude of learners to work efficiently in diverse teams, making essential compromises to achieve a common goal, implement shared obligation for collaborative task, and acknowledge the individual assistances made by each and every member of the team. Warschauer (1997) advocated that collaboration is a very essential skill in the new millennium of 21st century and it can be attained through working in groups of individuals in well-planned programs and tasks. Diblasi (2011) proposed that collaboration contribute well to the leaning of individuals through team work activities. The individuals must know the importance of teamwork so that they may develop and promote essential learning skills. Beside face-to-face student's interactions, learners also used electronic or ICT resources (e-mail, video conferencing, and social media) so that they may involve in team work. Fox (2011) argued that there is no degree (qualification) in any particular area of the study that guarantee for job employment, however, it is the collaborative work or team work that enables the individual to discover and solve problems. So collaboration is the indispensable condition for the 21st Century workforce. Furthermore, the development of Web 2.0 has generated an innovative world of collaboration with the help of social networks.

Objective of the Study

Objective of the study was to examine the existing programs and practices at the universities and their relations with 21st century skills.

Research Questions

Following were the key questions that guided this research study:

(1) To what extent the existing programs and practices at the universities are aligned with 21st century skills?
(2) To what extent do universities implement 21st century skills in the instructional practices?

Delimitation of the Study

The study was delimited to 21st century skills as "learning and innovation skills" also called "4Cs" skills. These skills are further categorized into sub skills and they are: (i) Critical thinking and problem solving skill; (ii) Creativity and Innovation skills; (iii) Communication skills; and (iv) Collaboration skills.

Methodology

The study was descriptive (survey-type) in nature and its main purpose was to measure, analyze and examine the opinions of university instructors, students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. The study was designed to gain a holistic perspective of the phenomenon regarding the implementation and development of 21stcentury skills at the universities of Pakistan. Three different surveys (self-developed questionnaires) were conducted for university teachers, students and members of NCRC. Data obtained from these methods furnished comprehensive information that how universities of Pakistan promote and implement 21st century skills to create 21st century citizens.

Population and Sample of the Study

Population of the study constituted members of NCRC committee for the subjects of education and management sciences, university teachers and students of BS programme in the departments of education and management sciences of nine general public sector universities of Khyber Pakhtunkhwa. The whole population of the study had the same language same, religion (Islam), and almost the same age group. The students of BS programme were consisted of girls and boys, who belonged to almost same culture and society. Majority of the students were the residents of Khyber Pakhtunkhwa.

The sample of university teachers and students was selected through the proportionate stratified random sampling technique, while the sample of NCRC members was selected through universal sampling techniques as per the following detail:

Table 1.

S No.	Target Group	Population	Sample size
1	Students	578	231
2	Teachers	206	135
3	NCRC Members	40	18
Total		842	402

Research Instrument

Three self-developed questionnaires were used as research instruments in this research study. Two online questionnaires (for teachers and NCRC members), and one paper based questionnaire (for students) were used to collect the data from the concerned respondents. All three questionnaires were based on five point Likert scales with five options and these options were included; (i) always, (ii) usually, (iii) sometimes, (iv) rarely and (v) never.

Validity and Reliability of the Research Instrument

Split half technique was used to investigate the reliability of research instrument as questionnaires. The coefficient of reliability calculated for each questionnaire through SPSS software version 20 is given below:

Table 2. Coefficient of Reliability

Sr.No.	Respondents	Coefficient of Reliability
1	Students	0.82
2	Teachers	0.86
3	NCRC Members	0.81

Furthermore, the research instruments were validated by the penal of experts consisting of PhD professors from different universities. They thoroughly studied and examined the developed research tools and shared their valuable opinion with the researcher about each item of the instruments. They agreed upon the content validity of the instrument and was found valid for the research study.

Collection and Analysis of Data

Three different self-developed questionnaires were administered among the respondents. In order to increase the rate of participation, student's survey was conducted as paper-based for which the researcher personally visited to the selected universities and invited BS students for filling out the given questionnaire. On the other hand, surveys for NCRC members and university teachers were made on-line.

Data gathered from the respondents in the study were analyzed and compared. "Statistical Package for the Social Sciences" software version 20 was used for the purpose of analysis. Multiple descriptive and statistical tools including mean, percentage and chi-square test goodness of fit were applied to analyze the data.

Analysis of Quantitative Data

Three different self-developed questionnaires regarding "Implementation of 21st century skills in universities" were administered to the 235 students of BS programme, 135 teachers and 40 NCRC members in different universities. After collection of data, responses of student, teachers and NCRC members were statistically analyzed and interpreted by using appropriate statistical tools. For the purpose of analysis and interpretation, researcher used "Statistical Package for the Social Sciences" software version 20. The data were interpreted as mentioned ahead:

Table 3. Development of critical thinking and problem solving skills of students

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	57	86	49	30	09	3.66	72.61	0.004
	Percentage	25%	37%	21%	13%	04			
Teacher	Frequency	33	54	25	18	05	3.56	49.40	0.004
	Percentage	24%	40%	19%	13%	04%			
NRC Members	Frequency	15	12	07	05	01	3.89	15.50	0.007
	Percentage	38%	30%	18%	13%	03%			
Total	Frequency	105	152	81	53	15	3.70		
	Percentage	26%	37%	20%	13%	45			

Table 3 shows respondents' views about the development of critical thinking and problem solving skills of students. It demonstrates that most of students (62%), teachers (64%) and NCRC members (68%) supported the statement that BS programme developed critical thinking and problem solving skills of students. As a whole, majority of the respondents (63%) were in favor of the statement. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members were 72.61, 49.40 and 15.50 with p-values of 0.004, 0.001and 0.007 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values were smaller than the assumed level of significance at 0.05.

Table 4. Development of creativity and innovation skills of students

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	35	52	82	36	2.84	7.05	0.062
	Percentage	11%	15%	23%	35%	16%			
Teacher	Frequency	14	28	28	42	24	2.74	8.96	0.083
	Percentage	10%	20%	21%	31%	18%			
NRC Members	Frequency	18	08	06	06	02	2.63	15.25	0.004
	Percentage	45%	20%	15%	15%	05%			
Total	Frequency	58	70	86	130	62	3.73		
	Percentage	14%	17%	21%	32%	15%			

Table 4 elucidates the respondents' opinions about developing creativity and innovation skills of students. It shows that large number of students (51%) and teachers (49%) were against the statement while the majority of NCRC members (56%) were in favor of the statement. By and large, greater numbers of the respondents (47%) were against the statement by arguing that BS programme in universities did not develop students' ability to think of several creative solutions to problems. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 7.05, 8.96 and 15.25 with p-values of 0.062, 0.083 and 0.005 respectively. Responses of students and teachers were found insignificant because the mentioned p-values were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence at. 0.05.

Table 5. Development of communication skills of students

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	47	75	65	32	12	3.49	55.30	0.004
	Percentage	20%	33%	28%	14%	05%			
Teacher	Frequency	31	45	34	19	06	3.56	33.11	0.017
	Percentage	23%	33%	25%	14%	04%			
NRC Members	Frequency	07	12	10	07	04	3.27	24.75	0.014
	Percentage	18%	30%	25%	18%	10%			
Total	Frequency	85	132	109	58	22	3.44		
	Percentage	22%	33%	27%	14%	05%			

Table 5 depicts respondents' views about developing communication skills of students. It describes that more than half of the students (63%), teachers (56%) and NCRC members (48%) were in favor of the statement. By and large, majority of the respondents (55%) supported the statement that BS programme in universities developed communication skills of students. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members were 55.30, 3.11 and 24.75 with p-values of 0.004, 0.017 and 0.0014 respectively. The responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values in the table were less than the assumed level of significance at. 0.05.

Table 6. Developing Collaboration Skills of Students

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	20	33	57	84	37	2.21	28.25	0.063
	Percentage	09%	14%	25%	36%	16%			
Teacher	Frequency	13	22	33	32	35	2.17	41.65	0.078
	Percentage	10%	16%	25%	24%	26%			
NRC Members	Frequency	17	10	05	05	03	3.20	14.75	0.003
	Percentage	42%	25%	13%	13%	08%			
Total	Frequency	50	65	95	121	75	2.52		
	Percentage	12%	16%	23%	30%	18%			

Table 6 demonstrates respondents' opinions about developing collaboration skills of students. It depicts that most of the students (52%) and teachers (50%) were against the statement while majority of the NCRC members (67%) were in favor of the statement. On the whole, majority of the respondents (48%) were against the statement and BS programme in universities did not develop student' ability to contribute individually to the team work. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 28.25, 41.78 and 14.75 with p-values of 0.063, 0.078 and 0.003 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-value for students and teachers were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members regarding the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence at 0.05.

Findings of the Study

Findings drawn from the analysis of responses of university teachers, students and NCRC members are stated as under:

1. Most of students (62%), teachers (64%) and NCRC members (68%) supported the statement that BS programme in universities develop students' ability to ask critical questions. On the whole, majority of the respondents (63%) acknowledged that BS students in universities were developing the ability of asking critical questions (Table 4.1).
2. Large number of students (51%) and teachers (49%) were against the statement while the majority of NCRC members (56%) were in favor of the statement. By and large, greater number of the respondents (47%) rejected the statement by arguing that BS programme in universities did not develop students' ability to think of several creative solutions to problems (Table 4.5).
3. More than half of students (63%), teachers (56%) and NCRC members (48%) were in favor of the statement that BS programme in universities developed students' ability to take part in active listening activities. By and large, majority of the respondents (55%) reported that BS students in universities learned the skill to take part in active listening activities (Table 4.9).
4. Most of the students (52%) and teachers (50%) rejected the statement while majority of the NCRC members (67%) supported the statement that. On the whole, majority of the respondents (48%) were found against the statement that BS programme in universities did not develop student' ability to contribute individually to the team work (Table 4.14).

Conclusion

1. Learning and innovation skills such as critical thinking and problem solving skills were developed in majority of the students. Curriculum of BS progrramme was found compatible to develop critical thinking and problem solving skills.
2. Learning and innovation skills such as communication skills were developed in majority of the students. Curriculum of BS progrramme was found incompatible to develop communication skills.
3. Learning and innovation skills as creativity were not implemented in universities. However, curriculum of BS progrramme was found compatible to develop the skills creativity.
4. Learning and innovation skills such as collaboration skills were not implemented in universities. However, curriculum of BS progrramme was found compatible to develop the skills of collaboration.
5. Department's vision for implementation of 21st century skills plays an important role in transmitting and developing these skills. However, almost all university had no vision for implementation of 21st century skills.
6. Professional development sessions were found incompatible with the teaching of 21st century skills at universities.
7. Universities lacked standards for demonstrations and implementation of 21st century skills.

Recommendations

Following are the recommendations of the study:

1. As the concept of 21st century skills is fairly new especially in developing countries like Pakistan. So it is very important for the policy makers to produce awareness among people and institutions for learning these skills and competencies and to take up the matter with high ups at different forum especially in policy dialogue. At the national level, the concerned ministry (ministry of education) may take up the matter for bringing to the articulation of 21st century skills in educational institutions. Keeping in view the rapidly changing priorities in the global world, it is indispensable for the educational institutions to adopt a formal policy for implementation of 21st century skills.
2. The second implication that emerged from this study is regarding pedagogy. Our teacher should modernize their pedagogy for teaching of 21st century skills so that they may prepare the young generation for future challenges. Teachers must incorporate the teaching of 21st century skills in their pedagogy through project-based teaching. To compete and survive in the present global era, it is very important for teachers to re-examine and modernize their teaching practices to develop new skills and competencies in learners.
3. The third implication of this study had to do with learners. They were a key element of this study and their self-reflection was the central focus of this research. Students must be curious in developing these essential skills so that they may prepare themselves to become useful and productive global citizens.
4. The Vision, Mission and Strategic Plan documents must be rewritten to reflect the implementation of 21st Century Skills. These documents must include input from all members of the higher education community

References

Berliner, D.C. (2010). *The incompatibility of high stakes testing and the development of skills for the Twenty-first Century*. In R. Marzano (Ed.), Bloomington, IN: Solution Tree Press

Diblasi, H. (2011). *Create, communicate, and collaborate*. Retrieved on October 15, 2016 from http://www.edtechmagazine.com/k12/issues/september-october-2009/createcommunicate collaborate.html

Dobozy, O., Bryer, B. & Smith, R. (2012). *Educational Psychology*, Milton, Qld: John Wiley.

Fox, M. (2011). *Implementation of 21st century skills: A paradox in a traditional world of education*. (PhD Thesis) College of Saint Elizabeth Morristown, New Jersy.

Gardner, H. (2006a). *Changing Minds. The art and science of changing our own and other's people mind*. Boston, MA: Harvard Business School Press.

Greenhill, V. (2010). *Memo from Partnership for 21st Century Skills from Common Core Standards Initiative Design Team*. San Francisco, CA: John Wiley & Sons

Halpern, D. (2003). *Thought and Knowledge* (4th Ed.). Lawrence Erbaum, Mahwah

Hillman, N. (2012). *Learning 21st century skills: Implementation of programs and practices*. (PhD Thesis) University of Southern California. USA

Kay, K. & Greenhill, V. (2011). *Bringing schools into the 21st century*. In D. Gut (Ed.), Twenty- first century students need 21st century skills

MacKinnon, D. W. (2005). *IPAR's Contributions to the Conceptualization and Study of Creativity. Perspectives in Creativity*. Taylor, I. A. & Getzels, J. W. (Eds.). Chicago, IL: Aldine Publishing Company

McLachlan, K. (2012). *A case study of 21st century skills programs and practices*. (PhD Thesis) University of Southern California. USA

NCECT. (2014). *Defining critical thinking*. Retrieved from http://www.criticalthinkig.org/pages/the-national-council-for-excellence in critical thinking/406 on 22 March 2014

NCREL & Metiri Group. 2003. *enGauge 21st century skills: Literacy in the digital age*. Naperville, IL:

Nisar, A. (2019). Challenges for higher education system in Pakistan. Pakistan and Gulf Economist. Retrieved from http://www.pakistaneconomist.com/2019/01/21/challenges-for-higher-education-system-in-pakistan/ on 18 June 2019.

P 21, (2009). P21 Framework Definitions. Partnership for 21st Century Skills (P 21), December 2009.

P 21, (2011). Partnership for 21st Century Skills (P21). Framework for 21st Century Learning. Retrieved from http://www.P21.org on July 10, 2014

Partnership for 21st Century Skills. (2006). Framework for 21st century learning. Retrieved from http://www.p21.org/documents/ProfDev.pdf

Perkins, D. N. (1988). Patterns of misunderstanding: An integrative model for science, math, and programming. Review of Educational Research,

Reid, A. & Petocz, P. (2004 Aug). Learning domains and the process of creativity. The Australian Educational Researcher

Trilling & Fadel (2009). *21st Century Learning Skills*. San Francisco, CA: John Wiley & Sons

Velez, A. (2012). *Preparing students for the future*. (PhD Thesis) University of Southern California. USA

Wagner, T. (2008). *The global achievement gap*. New York: Basic Books. Wallis, C.